6 A Conservative Approach to Determining the Confidence Level is Needed.

6.1 AT&T states that the most commonly used confidence interval in statistics based regulations is 95 percent.[23]

6.2 Under normal circumstances for a government conducted audit, a 95 percent confidence level may be appropriate. However, the circumstances of the property record audits are not normal.

6.3 There were several non-random and immeasurable sources of error and potential bias introduced during the implementation of the audits. A few of these sources are discussed below.

6.4 After the initial random selection of central offices, the FCC selected additional offices to cover specific states.[24,25] This introduces an unknown amount of bias and was not accounted for in the estimation stage. In the textbook that Mr. Loebbecke co-authored, it is explained that this is a type of judgmental sampling and it states that it is improper and a "serious breach of due care" [26] to use *statistical measurement techniques* if the sample is selected jutdgmentally. The text goes on to state that:

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[23] *Comments of the AT&T Corp.*, p.5. Note, that other references may discuss a 90 or 95 percent confidence level in sample based results. However, it is important to determine whether the government or the auditee was responsible for the sample design and its budget. When the auditee chooses the lower confidence level of 90 percent, then they are accountable for its consequences. It is also important to determine whether the confidence level discussed is for a one or two sided confidence interval. The one-sided 95 percent lower confidence bound is exactly the same as the lower bound of a two-sided 90 percent confidence interval.

[24] *Audit of the Continuing Property Records of BellSouth Telecommunications, Inc. As of July 31, 1997*, Appendix B, p. 6

[25] *Audit of the Continuing Property Records of the NYNEX Telephone Operating Companies Also Known As Bell Atlantic North As of March 31, 1997*, Appendix B, p.6

[26] Arens and Loebbecke, **Applications of Statistical Sampling to Auditing**, Prentice Hall Inc., New Jersey, 1981 p. 24

> "Only valid statistical selecion methods are acceptable when the auditor intends to evaluate a population statistically."[27]

6.5 Despite all of Mr. Loebbecke's and AT&T's claims to the contrary, there were substantial coding inconsistencies by the auditors. This was established by comparing the scores the auditors told the RBOCs they were receiving on each item at the time of the fieldwork to the scores they actually received after the audits were reviewed back in the home office. For example, about 12.5% of SBC's codes were rescored[28] and over 15 percent of Bell Atlantic South's codes were rescored.[29] How can there be any assurance that these post-inspection adjustments are correct or that others that may not still be necessary were found and recoded by the FCC staff's own internal review?

6.6 If only 95 percent confidence statements are made, then implicitly the assumption is being made that these audits were done with normal care and minimal "nonsampling" error. There is "nonsampling" error in these audits that is impossible to quantify yet cannot be ignored. As we said in our original submission and reiterate here a plausible approach in the presence of such error is to increase the confidence level to a percentage above the standard 95 percent.

6.7 Considering the unmeasureable amount of error introduced from improper sample selection and coding inconsistencies, the prudent choice would be perhaps a 99 percent confidence level to compensate for the unknown amount of error.[30]

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[27] *Ibid.*

[28] *Reply to December 22, 1998 Draft Report of the Federal Communications Commission Accounting Safeguards Division Audit of Nevada Bell and Southwestern Bell Telephone Company*, Attachment A

[29] *Response to Audit Staff Draft Report of Findings Related to Audit of Continuing Property Records of Bell Atlantic*, Appendix A, p. 18.

[30] We should also stress here that we are considering one-sided confidence bounds. If the margin of error used for a one-sided 99 percent lower confidence bound if used to produce a confidence interval, then it is a 98 percent confidence interval.

7 Negative Lower Confidence Bounds

7.1 To calculate a lower confidence bound, the amount of precision, also sometimes known as the "margin of error," is subtracted from the estimate. Therefore, some estimates for overstated dollars from the property record audits might have negative lower confidence bounds. Indeed, based on our calculations this did occur. The margins of errors for the estimates were larger than the estimates themselves.

7.2 Statistically, when zero is above the lower confidence bound, the audit results cannot be used as evidence that the property record overstated amount is more than zero. This is simple classic textbook statistics, not improper mathematics nor illogical thinking as AT&T asserts.[31]

7.3 The fact that there are negative lower confidence bounds when there were indeed some cases in the sample that would at the very least account for a few thousands dollars of overstated value, demonstrates the poor precision obtained in the audit, not any improper calculation of confidence bounds. As a result, the precision achieved by the audit is too poor to be actionable in adjusting the value of the RBOC property.

8 The Property Record Audits Erroneously Used Too Many Degrees of Freedom

8.1 Dr. Bell agrees with Ernst and Young[32] that the estimates from the property record audits should have had a smaller number of degrees of freedom[33] in the calculation of the margin of error, and therefore, the confidence intervals are actually wider that those portrayed by the FCC. However, Dr. Bell guesses

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[31] *Comments of the AT&T Corp.*, p.25

[32] *Affidavit of Robert M. Bell*, p. 11

[33] The degrees of freedom determine which constant is used when calculating the margin of error for a specified confidence level. Smaller degrees of freedom produce larger margins of error. Dr. Bell actually states as fact that the degrees of freedom for the audit studies would be about 20 to 24. But considers 10 to 20 in his calculations.

that there would only be a 6 to 14 percent increase in the width of the confidence intervals because the smallest number of degrees of freedom he contemplates are in the range of 10 to 20.

8.2 In fact, there are far less than 10 degrees of freedom for many of the estimates of the overstated inventory amounts. Our calculations indicate that some of the RBOC estimates only have two or three degrees of freedom.[34] Therefore, the affect on the confidence intervals is much more substantial than Dr. Bell leads his readers to believe.

8.3 Using resampling methodology (see 10.3), we calculate that the margin of error for a 95 percent lower confidence bound for the dollar value will increase 30 to 50 percent (depending on the RBOC[35]) over the standard methodology found in textbooks.

9 The Property Audit Estimates are Biased.

9.1 Dr. Bell states that the audit staff produced essentially unbiased point estimates for both the percentage of missing items and the total dollar amount of missing investment.[36] Based on the quite limited nature of his representation, we are uncertain how he is able to speak to this. In our view, there are several sources of bias in the audits, worth reiterating here

9.2 First of all, the formulas that the FCC staff reports using produce biased estimates. This is clearly stated under the description of the formulas in the text by Cochran[37] which both the FCC staff and Dr. Bell cite. In fact, Ernst & Young

[34] *Response to Audit Staff Draft Report of Findings Related to Audit of Continuing Property Records of Bell Atlantic*, Appendix A, p. 15. *BellSouth's Response to Audit of Continuing Property Records of BellSouth Telecommunications As of July 31, 1997*, Appendix A. *BellSouth's Response to Audit of Continuing Property Records of BellSouth Telecommunications As of July 31, 1997*, Appendix A..

[35] *Response to Audit Staff Draft Report of Findings Related to Audit of Continuing Property Records of Bell Atlantic*, Appendix A, pp. 12-18. *BellSouth's Response to Audit of Continuing Property Records of BellSouth Telecommunications As of July 31, 1997*, Appendix A.

[36] *Affidavit of Robert M. Bell*, p. 6

[37] Cochran, **Sampling Methodology 3rd ed.,** John Wiley and Sons, New York, New York, 1997

did study this issue and we agree that the amount of bias (from this source only) is rather small.

9.3 Second, Dr. Bell does not mention at all the bias introduced by the FCC staff when, after the fact of the initial sample selection, the FCC staff added central office sites, to obtain to obtain central offices in particular states.[38]

9.4 Third, the FCC staff substituted, for the sake of convenience, central offices that were in undesirable or inconvenient locations. Thus the population available for sampling is not the population that estimates are being made on.

9.5 Since the basic formulas themselves are biased, and there are sources of bias in the coding and in the sample selection, it is inappropriate to represent the property audit estimates as "unbiased."

10 The Affect of Asymmetry is to Reduce the Lower Confidence Bound.

10.1 Dr. Bell comments on the problems of asymmetry of the confidence intervals[39] and cites Efron and Tibshirani[40] as a source for methods to correct for this. The procedures discussed in that text, however, are entirely inappropriate given the complex sample design employed in the audit. The Efron and Tibshirani reference does not even address stratified sample designs – much less two-stage stratified samples. For a proper discussion of the issues of bootstrapping in complex settings, refer to the papers by Sitter[41] and by Rao and Wu.[42]

10.2 Furthermore, in paragraph 32 of his affidavit, Dr. Bell states,

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[38] See footnotes 24 and 25.
[39] *Affidavit of Robert M. Bell*, p. 11
[40] Efron and Tibshirani, ***An Introduction to the Bootstrap***, Chapman & Hall, 1993
[41] Sitter, *A Resampling Procedure for Complex Survey Data,* **Journal of the American Statistical Association,** 1992, 87, pp. 755-765.
[42] Rao and Wu, *Resampling Inference with Complex Survey Data,* **Journal of the American Statistical Association**, 1998, 83, pp. 231-241

> "Specifically, the lower end of the interval should be closer to the point estimate than is the upper end of this interval."

His unsubstantiated claim is wrong again.[43] In fact, we present quite clear contrary evidence. (See 10.3 below.)

10.3 Ernst & Young explored this issue using another resampling technique, different from bootstrapping, and our analysis of the situation suggests otherwise.[44] This is something Dr. Bell failed to mention. The first stage of sampling the central office sites[45] from the sampling frame was analyzed by Ernst & Young. It was found that the asymmetry effect is exactly the opposite of Dr. Bell's assertion. The lower bound extends further away from the point estimate. Dr. Bell is right about one thing; in paragraph 32, he notes that the size of the suitable correction is quite large. However, the effect is to further lower the confidence bound.

11 <u>The Sample Was Not Designed to Produce Precise Estimates of Overstated Inventory</u>.

11.1 The sample was initially designed to estimate the proportion of property records that were in error, not the dollar amount overstated. In fact, the initial sample size calculations were based on a simple random sample, not on the complex design actually used. Dr. Bell agrees with this.

11.2 If the audits had only been used to estimate the percent of records in error, there probably would not have been as many difficulties. However, the audits

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[43] Dr. Bell even contradicts his own statements later in paragraph 34 when he states that he cannot determine which way the limit will shift.
[44] See footnote 35.
[45] The variation among the primary sampling units, which are the central office sites selected, constitutes the major source of variation in a two stage sample and thus Ernst and Young's analysis the considers the majority of the variance.

were used to estimate total dollars in error, and the sample design chosen was grossly insufficient for this purpose.

11.3 It is apparent that there were two functions of the audit: one was to establish overstated investment; the other was to estimate the proportion of the percent of records in error. The estimate of the overstated investment has the more serious consequences and the design was inadequate for this – as evidence by the large variability of the dollar estimates resulting in the extremely poor precision levels.

11.4 If the goal were to estimate the amount of overstatement, then the sample should have been designed differently from the beginning in order to obtain reasonable confidence and precision levels of the overstated amount.

11.5 Mr. Loebbecke spells this out in another co-authored textbook:

> "The most important differences among tests of controls, substantive tests of transactions and tests of details of balances is in what the auditor wants to measure. ... In tests of details of balances, the concern is determining whether the monetary amount of an account balance is materially misstated. Attributes sampling, therefore, is seldom useful for this purpose. Instead, auditors use two types of statistical methods that provide results in *dollar* terms. These are *monetary unit sampling* and *variable sampling.*"[46]

This CPR property audit is a classic example of an attribute sample[47] being used inappropriately when another design should have been employed.

11.6 The appropriate sample design would still most likely have incorporated a two-stage approach. However, sample size determinations would have been

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[46] Arens and Loebbecke, **Auditing An Integrated Approach 6th ed.**, Prentice Hall, Englewood Cliffs, New Jersey, 1994, p. 459

calculated based on dollar values rather than proportions and should have incorporated a two-way audit for understated inventory as well as overstated inventory. Also the required sample sizes, especially the number of central offices, may have had to be larger to achieve reasonable precision on dollar estimates.[48]

11.7 We disagree with Dr. Bell[49] that the variance of the proportion estimate would have increased significantly if the design were based on estimating dollar values. His speculation is contrary to both theory[50] and to our experience. As noted, dollar estimates probably would have required a larger number of central offices in the sample size. Thus, it is unlikely the variance of the proportion estimate would have suffered. In fact, the increased sample may have even improved the precision of the proportion estimates and the FCC could have achieved narrower confidence intervals for the proportion as well.

11.8 Dr. Bell states that it is not possible to optimize a design for both estimates of the dollars in error and estimates of the proportion of records in error.[51] However, it should be noted that this type of problem occurs in almost all large, complex surveys. Sampling statisticians have found that it is possible to satisfy reasonable precision requirements for multiple estimates.

11.9 In addition, AT&T asserts that a two-way audit would have required a costly 100 percent inventory review at each central office selected.[52] This is again, untrue. "Area sampling" could have been implemented where only a

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[47] An "attribute sample" is intended to estimate a percentage.
[48] Note that Dr. Bell states that the expected value of an estimate is not influenced by heavily over sampling high cost items (as in pps). That is not the main point. The variability is reduced by pps sampling which is why it should be considered. Also see 11.11.
[49] *Affidavit of Robert M. Bell*, pp. 5-6
[50] Cochran **Sampling Methodology 3rd ed.,** John Wiley and Sons, New York, New York, 1997, p. 110
[51] *Affidavit of Robert M. Bell*, p. 6
[52] *Comments of the AT&T Corp.*, pp. 10-11

portion of the office was completely examined, and what was found checked against the CPR records. This is a commonly used practice.

11.10 Dr. Bell asserts that the expected value of an alternative design (using, say, the PPS approach mentioned above) would be the same as under the current design. He presents this in such a manner as to lead the reader to believe the estimated amount of dollars in error would be similar, even if another design were used. This is a false impression.

11.11 Recall the example discussed in Section 3 of the sample of two numbers between 0 and 1000. The expected value of the estimate in any simple random selection of two numbers from this population is 500. However, depending on the luck of the draw, the estimate obtained from any one particular sample can be grossly different. As stated already, it could be as low as 0.5 to as high as 999.5.

11.12 With the current property audit estimates, given their large variances, it is highly improbable that one would achieve a similar point estimate using another random sample with the exact same sample design, during the same period of time, under the same conditions with the very same auditors. The variance is so poor, you cannot expect much stability in the estimates from different random selections using the very same sample design, much less a different (and better) one.

11.13 Dr. Bell goes so far as to state,

> "There is no reason to expect that the results of any reasonable alternative would differ substantially in any particular direction."[53]

What he fails to address at this point is the precision of the estimates. Three pages later he does admit that the variance could have been reduced by an alternative

[53] *Affidavit of Robert M. Bell*, p. 2

design.[54] The point is, a better designed sample could produce more precise and hence, credible estimates.

11.14 Had a different sample design been used for the continuing property audits, a reasonable degree of precision could have been achieved for the estimates of overstated inventory value. However, the design that was used, was insufficient for that purpose. The outcome from the sample design deficiency is that the property audit estimates are too imprecise to be actionable.

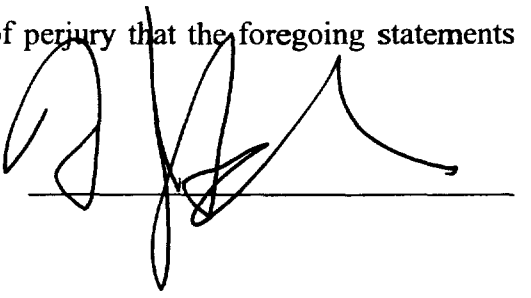
12 Conclusion.

12.1 Dr. Bell, Mr. Loebbecke and AT&T failed to address the basic deficiency of the continuing property record audits. That is, *the estimates for the value of the overstated inventory have extremely poor precision.* The audit sample was not designed to achieve reasonable precision levels for these estimates and the audit sample did not achieve reasonable precision for the estimates. The estimates margins of error for the value of overstated inventory are so large that the amounts reported by the FCC audit staff as overstated investment are unsound and cannot be fairly relied upon as the basis for reducing the RBOCs book values.

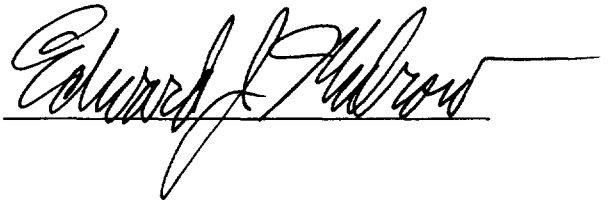
[54] *Affidavit of Robert M. Bell*, p. 5

DECLARATION

I, Fritz Scheuren, declare under penalty of perjury that the foregoing statements are true and correct.



I, Edward J. Mulrow, declare under penalty of perjury that the foregoing statements are true and correct.



October 21, 1999

Dr. Fritz Scheuren

Urban Institute Senior Fellow

Fritz Scheuren, an Institute Senior Fellow, is an internationally recognized expert in survey statistics. He has held some of the highest positions in the U.S. government in statistics, including Director of the Statistics Division of the Internal Revenue Service and the Chief Mathematical Statistician for the Social Security Administration. Dr. Scheuren has consulted extensively with other government agencies, including work with the National Center for Education Statistics (NCES) on educational administrative data (Common Core Data) and on the School and Staffing Survey. His work for the Census Bureau in researching the use of administrative records in census-taking has received worldwide recognition. He was also the National Technical Director of Statistical Sampling at Ernst & Young LLP (from 1997 to 1999).

Dr. Scheuren's honors have been numerous. Among these he has been made a Fellow of the American Association for the Advancement of Science and a Fellow of the American Statistical Association. In 1995, he received the prestigious Shiskin Award for contributions to U.S. economic statistics; just last year (1998) he was honored by being given the Founders Award by the American Statistical Association – the highest award given for service to the statistical profession.

Dr. Scheuren's career has been characterized by technical and managerial leadership of major leading-edge research projects as evidenced by his many publications – well over a 150 in all -- of which only a small selection are listed below. Only illustrative references to research areas where Dr. Scheuren remains active have been cited.

Dr. Scheuren came to the Institute in January of 1999. Currently, he is in overall charge of the Urban Institute's National Survey of America's Families (NSAF). In addition to his managerial duties he is also the editor and a principal author in the 1997 NSAF Methodology Series (16 volumes to date). That survey is a major part of the Urban Institute's Assessing the New Federalism project. There have been two rounds of data collection so far – during 1997 (from which public use files are being released) and during 1999 (which is just now wrapping up and from which results will be available in 2000). Each round consists of a survey of over 40,000 households -- collecting information on the economic, health, and social dimensions of the well-being of children, adults under the age of 65, and their families.

In recent years Dr. Scheuren has acted as a regular consultant to the National Center for Education Statistics (NCES). Some of the work he did was on advanced forms of post-stratification weighting – in particular what have come to be called "calibration estimators." He also worked on nonresponse issues and explored the feasibility of employing a Canadian Technique -- called "Mass Imputation" -- as a substitute for other forms of post-stratification, given that the frames available to NCES were so extensive.

Currently Vice-President of the American Statistical Association, Dr. Scheuren has formerly been a Member of the National Academy of Sciences, Committee on Applied and Theoretical Statistics; Scientific Secretary of the International Association of Survey Statisticians; Chair of the American Statistical Association's Section on Survey Research Methods; and President of the Washington Statistical Society.

There are many other ways Dr. Scheuren has supported the profession of statistics, for example as an associate editor for long periods at the ***Journal of the American Statistical Association***, the ***Journal of Business and Economic Statistics***, and ***Survey Methodology.*** He has and continues to be active as a referee for these journals and others.

Dr. Scheuren's involvement with human rights began with statistical research on Landmines (where he played a small part). Jody Williams was eventually to get the Nobel Peace Prize for this initiative. He has also worked on the search for statistically sound evidence concerning the gold taken from holocaust victims and placed in Swiss banks. This year at the statistical meetings in Baltimore he gave a presentation on his collaborative work on Guatemala Human Rights Research, entitled –

> "Human Rights Violations in Guatemala," (1999), ***Proceedings, Section on Survey Research Methods, American Statistical Association,*** (with P. Ball, H. Spirer, and W. Seltzer).

During the war with Yugoslavia this past spring, he was also asked to go to Albania and help mount what became the Kosovar Refugee Survey. The Kosovar efforts, reported on already in ***Science*** and in the ***Amstat News***, continue. Eventually, it is hoped that the work will lead to a greater understanding of this tragedy.

National Technical Director of Statistical Sampling at Ernst & Young LLP (from 1997 to 1999). Much of the statistical work done was client-confidential and so can only be described in general terms. There have been, however, a fair number of audit sampling studies undertaken (involving IRS tax cases, plus some other regulatory agencies, notably the FCC). Inventory sampling was a mainstay too; however, the technical advances made in achieving more efficient inventory designs are proprietary and have not been published. Some of the work, notably for government agencies or given before Congress is public and can be cited. Examples are given below:

> ***Interim Statistical Analysis for BellSouth Telecommunications*** (1998), Ernst & Young LLP, (with S. Hinkins, and E. Mulrow). This was an extensive report to the Louisiana Public Service Commission analyzing data required to be reported for regulatory purposes. Subsequent regulatory filings, not cited but which continue, are less extensive.
>
> **1997 National Bankruptcy Petition Study,** Prepared for VISA and delivered to the House of Representatives in April 1998 (with Tom Neubig)

Surveying the Financial Service Needs of Non-Banked Households: Final Survey Design (1997), Ernst & Young LLP. This was prepared for the Office of the Controller of the Currency and led to two surveys.

Professor of Statistics at The George Washington University.

Dr. Scheuren taught statistics from 1994 to 1997, and he still teaches survey sampling. Since 1985, when Dr. Scheuren resumed teaching statistics on a regular basis, the cognitive problems of non-statistic majors became a focus of his research. This interest has gone so far that he teaches occasional courses at the USDA Graduate School on how people think and therefore learn statistics.

Director of Statistics at the Internal Revenue Service (1980 to 1994).

Most of the day-to-day responsibilities Dr. Scheuren had when in government were to help others prepare data for policy analyses, often using microsimulation models. While not an area in which he has done major research himself still he has contributed by running two major international conferences on individual and business tax microsimulation modeling – both in 1992. He has also worked on statistical matching – a commonly used and often criticized method for preparing the data to be introduced into policy microsimulation models.

Dr. Scheuren recently contributed a technical appendix to a 1999 report by John O'Hare for Health and Human Services on statistically matching the National Health Interview Survey and the Current Population Survey. He also has a doctoral student studying statistical matching.

Income and wealth research has been an area of continuing interest since before Dr. Scheuren's student days at the Office of Economic Opportunity. Some of his early work is reprinted in a ***1995 Compendium of IRS Estate Tax Wealth*** for which he also wrote the preface.

Chief organizer of two international conferences – in 1985 and 1997 -- on record linkage. These resulted in widely cited proceedings on which Dr. Scheuren played an editorial role: ***Record Linkage Techniques – 1985*** (published by the Internal Revenue Service) and ***Record Linkage Techniques – 1997*** (Published by Ernst & Young LLP).

Federal statistical agencies have numerous goals and Dr. Scheuren has written on these extensively from his vantagepoint as the head or former head of a major statistical organization. Some examples include

"Trust in The U.S. Statistical System," (1995). ***Turning Administrative Systems into Information Systems,*** Internal Revenue Service; Washington, DC.

"Turning Administrative Systems into Information Systems," (1993), ***Journal of Official Statistics***, (with T. Petska).

"Statistical Research Problems in Government," (1990), ***Statistics of Income and Related Administrative Record Research: 1988-1989***, Internal Revenue Service.

"Goals for Statistical Uses of Administrative Records: The Next Ten Years," (1985) ***Journal of Business and Economic Statistics*** (with T. Jabine).

The quality improvement revolution remains a theme in much of the research Dr. Scheuren has done. Examples of recent specific work in this area, which grew out of his years at the IRS, is summarized in the following:

"NSAF Quality Challenges and Responses in Surveying the Poor, " (1999). Welfare Conference, upcoming in November (with K. Wang and J. Kenney).

"IRS Test Call System," (1997). ***Survey Measurement and Process Quality,*** Wiley: New York, (with Mary Batcher –1996).

"Total Quality Management in an Administration Setting," (1996). ***Data Quality*** (with J. Mulrow).

Confidentiality and Privacy Research. – Research on Record Linkage techniques and analysis issues led naturally to concerns about reidentification risks in public use files and to confidentiality and privacy concerns in general. Some of the recent work done on this area includes

"Linking Data Sets: Information Needs Versus Privacy in the Computer Age — A Balancing Act?" (1999). Presented at the American Evaluation Associate Conference (with Judy Droitcour).

"Preserving Both Confidentiality and the Ability to Calculate Variances in the National Health Interview Survey," (1999), ***Proceedings, Section on Survey Research Methods, American Statistical Association*** (with S. Hinkins and V. Parsons).

"The Confidentiality Beasties: A Fable About the Elephant, the Duck, and the Pig," (1998), ***Turning Administrative Systems Into Information Systems***, Internal Revenue Service, (with J. Mulrow).

Chief Mathematical Statistician at the Social Security Administration (1972 to 1980).

Lead the team that conducted what is still the most comprehensive linkage of survey and administrative data to study U.S. income distribution issues. This Study has recently been updated to look at lifetime earnings and mortality differentials.

The second summary was developed as part of a major 1978 Williamsburg conference that Dr. Scheuren led in organizing. The goal of the conference was to showcase the survey research,

including record linkage, then being done in the Office of Research and Statistics at the Social Security Administration.

Beginning in the early 1980s the possibility that the U.S. might mount a partial decennial census using administrative records became an area of research. Some of the recent work published on this subject includes –

> "Administrative Records and Census Taking," (1999). ***Survey Methodology***. Based on an earlier unpublished report submitted to the Census Bureau in May 1999.
>
> Fritz Scheuren "The Census Sampling Controversy: When Can A Sample Be Better Than A Census?" (1997), ***Consortium***.
>
> "An Administrative Record Census in the U.S.?" (1995), ***Chance.***

Handling nonresponse and other forms of missing data has been a major research focus, especially during the time Dr. Scheuren was a member of the National Academy of Science's Panel on Incomplete Data in Surveys (1979 to 1983). He also conducted research on improving the (unconditional) efficiency of conventional sample designs along with work on ranking ratio estimation, which is a form of post-stratification and can lead to improved (conditional) efficiencies after data collection.

Dr. Scheuren received his doctorate in 1972; his dissertation topic was ***Topics in Multivariate Finite Population Sampling and Data Analysis*** (1972), The George Washington University.

Exhibit B

REPLY DECLARATION OF

CARL R. GEPPERT

REPLY DECLARATION OF CARL R. GEPPERT

I, CARL R. GEPPERT, declare that:

I am a Certified Public Accountant and a partner of Arthur Andersen LLP ("AA"). My business address is 1225 17th Street, Suite 3100, Denver, Colorado 80202. I am a member of a group at AA that provides audit, tax and consulting services to clients in the communications industry.

During my 19-year career, I have been almost exclusively involved in financial, regulatory and cost accounting matters in the telecommunications and utilities industries. I have served as an auditor for and consultant to clients in the telecommunications industry and currently direct my firm's telecommunications industry practice in the areas of regulatory accounting, auditing and consulting. I am our Firm's representative on the Telecommunications Subcommittee of the Public Utilities Committee of the AICPA.

PURPOSE AND SCOPE OF DECLARATION

This declaration will address certain issues raised in the comments of several parties in response to the Notice of Inquiry[1] and the related Public Notice[2] released by the Federal Communications Commission ("FCC") Common Carrier Bureau's ("Bureau") Accounting Safeguards Division ("ASD") on April 7, 1999. The issues this declaration will address relate to the audit and re-scoring procedures employed by the ASD in its audit of the continuing property records ("CPRs") of hardwired central office equipment ("COE") at the Regional Bell Operating Companies ("RBOCs"), including the Ameritech Operating Companies ("Ameritech" or the "Company"). The results of such audit, together with the Company's comments, were publicly released on March 12, 1999.[3] Specifically, I will address the following issues:

- Sufficiency of the ASD's Audit Procedures. The ASD's audit procedures were deficient with respect to the use of generally accepted auditing standards ("GAAS") and/or generally accepted government auditing standards ("GAGAS") and do not provide a reasonable basis for rendering an opinion as to the fair presentation, in all material respects, of the COE plant investment balance. The conclusions reached and recommendations offered by the ASD in its Audit Report cannot be relied upon

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[1] *In the Matter of Ameritech Corporation Telephone Operating Companies' Continuing Property Records Audit*, Notice of Inquiry, CC Docket No. 99-117, FCC 99-69 (rel. April 7, 1999), [hereinafter Notice of Inquiry]; DA 99-072, rel. June 2, 1999; DA 99-1321, rel. July 2, 1999; DA 99-1855, rel. September 10, 1999.

[2] *The Accounting Safeguards Division Releases Information Concerning Audit Procedures for Considering Requests by the Regional Bell Companies to Reclassify or "Rescore" Field Audit Findings of their Continuing Property Records*, Public Notice, DA 99-668 (rel. April 7, 1999), [hereinafter Public Notice].

[3] *Audit of the Continuing Property Records of Ameritech Telephone Operating Companies - As of July 31, 1997* (rel. March 12, 1999), [hereinafter Audit Report].

- such conclusions and recommendations can only be made based on comprehensive audits performed in accordance with authoritative standards and practices.

- ASD's Methodology Used to Re-score "Not Found" Items. The procedures followed by ASD to score and re-score items as "not found" were **not** biased in favor of the RBOCs, including the Company. The ASD's re-scoring process focused only on the gathering of "probative evidence," a restrictive and arbitrary standard, and did not take into account several aspects of GAAS or GAGAS necessary to render a fair evaluation of the COE account balances. Such critical deficiencies included ignoring evidential matter obtained from independent sources and the failure to review internal controls over the hardwired COE CPR process in order to properly determine the validity and reliability of the numerous types of supplemental evidence submitted to ASD by the Company.

- Attribution of Audit Results to Prior Periods. There is **no basis** under GAAS or GAGAS to attribute the results of the ASD's physical verification procedures to prior periods. The results of an audit procedure, such as a physical verification of COE assets, can only be used to form conclusions with respect to the account balances audited as of the audit date (July 31, 1997). This is particularly true given that the ASD did not perform any audit procedures, such as tests of internal controls over hardwired COE, that would enable them to assess the sufficiency or deficiency of the Company's business processes and controls over hardwired COE over time.

- Allegations of "Phantom Plant." The comments that allege the Company has recorded hundreds of millions of dollars in hardwired COE that was in fact never placed in service[4] are unfounded. There is no evidence to support this "phantom plant" contention, primarily because the ASD audit never addressed the Company's internal controls, methods and procedures with respect to the hardwired COE procurement process. The ASD's physical verification procedures, even if performed properly and completely, were insufficient to determine the cause of missing hardwired COE, if any.

These deficiencies, together with the deficiencies identified in the Company's original comments in this proceeding and highlighted in my Declaration included as Attachment A to those comments ("Prior Declaration"), show that the ASD's audit procedures, conclusions and recommendations are flawed and cannot be relied on to form an opinion on the fair presentation of the Company's COE account balances. I will not repeat the issues previously covered in my Prior Declaration -- rather, I will expand on such areas in sufficient detail to address the issues raised in the comments to the Notice of Inquiry.

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[4] See *In the Matters of Ameritech Corporation Telephone Operating Companies', et al Continuing Property Records Audits*, Comments of AT&T Corp., CC Docket No. 99-117, ASD File No. 99-22, rel. September 23, 1999, [hereinafter AT&T Comments], page 30, and Comments of MCI WorldCom, Inc., CC Docket No. 99-117, ASD File No. 99-22, rel. September 23, 1999, [hereinafter MCI WorldCom Comments], Attachment 2: Snavely King Report, pages 4-5.

SUFFICIENCY OF THE ASD'S AUDIT PROCEDURES

Analysis of Authoritative Auditing Standards

The ASD states in its Public Notice that the audit was conducted in conformance with GAGAS, which are claimed to be comparable to GAAS. This position is explained further in the Affidavit of James K. Loebbecke ("Loebbecke Affidavit"), included as Exhibit C to the AT&T Comments.

In his affidavit, Mr. Loebbecke states that the ASD's audit procedures "fully complied with ***applicable professional standards*** [emphasis added]."[5] In explaining the meaning of "applicable professional standards," Mr. Loebbecke states:

> Thus, the audits have two specific objectives: compliance and accuracy. In terms of the latter objective, it is clear from the procedures planned and performed by the staff that accuracy was defined as existence of the assets and correctness of the CPR. Completeness was not an objective, as no tests of completeness were included in the audit plan. Consequently, these audits would best be described as special purpose audits with limited scope and purpose, as opposed to comprehensive audits of Bell Atlantic's property accounts to determine whether they conform to generally accepted or regulatory accounting principles.[6]

In comparing the ASD's audits to GAAS and GAGAS standards, Mr. Loebbecke further notes that "GAAS provide for engagements of similar scope to the staff's audit, called "agreed-upon procedures" engagements. GAAS make it clear that such engagements should be conducted under the general GAAS standards and the first standard of field work."[7] Mr. Loebbecke also cites several GAGAS standards that he claims were followed during the ASD's audits.[8]

The limited scope of the ASD's audits was also noted in the AT&T Comments. In footnote 10 of page 22, AT&T notes:

> In light of the ***narrow focus*** [emphasis added] of the Staff's inquiry, the Staff's audit is best described as special purpose audit, rather than a comprehensive audit of the RBOCs property accounts.[9]

The above observations are significant in many respects.

First, Mr. Loebbecke correctly observes that the ASD's audits were not performed in accordance with GAAS with the intent to conclude as to the fair presentation of COE plant account balances. Such a conclusion can only be rendered based on an audit performed in accordance with **all** GAAS standards and not selected standards. Neither

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[5] Loebbecke Affidavit, ¶ 2.
[6] Loebbecke Affidavit, ¶ 14.
[7] Loebbecke Affidavit, ¶ 15.
[8] Loebbecke Affidavit, ¶ 16.
[9] AT&T Comments, p. 22 (footnote 10).

a special purpose audit with limited scope or purpose nor an agreed-upon procedures engagement meets the GAAS standards necessary to render such a conclusion. In other words, conclusions drawn with respect to the fairness of the COE account balances can only be made based on audits performed in accordance with **all** GAAS standards and cannot be made based on the audit procedures performed by the ASD.

Second, it is significant that completeness was not an objective of the ASD's audit. As Mr. Loebbecke stated in his affidavit, the audit was directed only at determining the correctness of the CPR via the attempted verification of assets listed on that CPR. This objective cannot be confused with the much more comprehensive objective of determining the fair presentation of the Company's hardwired COE account balances.

Third, agreed-upon procedures ("AUP") engagements are **not** audits performed in accordance with GAAS. In fact, the auditor performing an AUP engagement may not render an opinion of any kind based on the results of his or her work. In fact, in an AUP engagement, "the accountant does not perform an audit and does not provide an opinion or negative assurance relating to the fair presentation of the specified elements, accounts, or items of a financial statement. Instead, the accountant's report on agreed-upon procedures should be in the form of procedures and findings."[10] In other words, the auditor's work is not planned or performed with the objective of rendering an opinion on the fairness of presentation of the accounts or account balances in question; thus, no such opinion can be rendered. Specifically in the case of the ASD's audit of the Company, recommendations to write-off investment, including $306.0 million of hardwired COE and $260.7 million of undetailed investment (in order to, in the ASD's opinion, fairly state the hardwired COE account balances), cannot be supported by the type of engagement performed by the ASD.

Audit Evidence and Communications with Management

It is also telling to examine the GAAS standards that were omitted from Mr. Loebbecke's affidavit and the ASD's audit process. Specifically, the following GAAS standard of fieldwork should be noted:

> Standard of Field Work No. 3 - Sufficient competent evidential matter is to be obtained through inspection, observation, inquiries, and confirmations to afford a reasonable basis for an opinion regarding the financial statements under audit.[11]

GAAS requires the auditor to investigate all information that he or she becomes aware of, including information provided by management, during the audit process. With respect to all information provided, the auditor must determine:

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[10] AICPA, Statements on Auditing Standards, AU Section 622: Engagements to Apply Agreed-Upon Procedures to Specified Elements, Accounts, or Items of a Financial Statement, "Engagements to Apply Agreed-Upon Procedures."

[11] AICPA, Statements on Auditing Standards, AU Section 326: Evidential Matter.

- Whether the information is reliable and factual,

- If the facts existed at the date of the audit report and whether it is likely that users or likely users of the report would attach importance to the new information, and

- Whether appropriate disclosures of such facts should be made to the users or likely users of the audit report. If the effect on the financial statements or auditor's report of the information can promptly be determined, disclosure should consist of issuing, as soon as practicable, revised financial statements and auditor's report.

In other words, an important source of audit evidence is Company management. As the ASD auditors were only in the field one day per central office location, it is conceivable that not all assets could be located or physically verified. An audit is not a "one chance and one chance only" proposition, however. To the extent that management was able to find the sampled equipment subsequent to the auditors' field work or obtained reasonable support documentation to refute a "not found" determination, such additional evidence should be considered in the same light that the physical verification results were considered. **It is inconceivable and contrary to conventional auditing practices that the ASD staff did not perform follow-up field visits in order to verify hardwired COE that was found subsequent to their one-day visit.** It is equally inconceivable that the ASD largely ignored the physical verifications performed by AA (see Attachment B of Ameritech's September 13, 1999 comments in this proceeding).

During the ASD's audit process, communications were extremely limited thus depriving the ASD of the benefits of management's insight and input to the audit process and results. Only upon the insistence of the RBOCs were draft audit results released in July 1998.[12] Even then the ASD did not permit any dialogue between the ASD and the RBOCs, as the RBOCs were permitted only to:

- "Comment on the specific findings addressed in the enclosed draft report and listings, limited to correction of factual errors or omissions"[13] in response to the ASD's July Report, and

- "Provide specific comment on the enclosed audit report, limited to a total of 50 pages (including attachments, if any)"[14] in response to the ASD's December Report.

This "dialogue," which occurred only upon the insistence of the Company and the other RBOCs[15], was not the two-way communication necessary to interpret and resolve audit findings and conclusions in this complex area.

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[12] It should be noted that the individual RBOCs were required to sign a restrictive Non-Disclosure Commitment in order to obtain copies of their draft audit reports.

[13] FCC Draft Audit Report, "Audit of the Continuing Property Records of Ameritech As of July 31, 1997, Report of Audit Findings" issued July 27, 1998 (hereinafter referred to as the "July Report").

[14] FCC Draft Audit Report, "Audit of the Continuing Property Records of Ameritech As of July 31, 1997" issued December 22, 1998 (hereinafter referred to as the "December Report").

Generally Accepted Government Auditing Standards

GAGAS does prescribe relevant standards pertaining to audit quality and the characteristics of professional and meaningful audit reports. Mr. Loebbecke cites several GAGAS standards that were applicable to the ASD's audits. However, GAGAS as codified in Government Auditing Standards,[16] also specifies the following critical requirements, among others, that were not followed by the ASD in conducting its CPR audits:

- Auditors should obtain a sufficient understanding of internal controls to plan the audit and determine the nature, timing and extent of tests to be performed.[17] These CPR audits consisted solely of the physical verification of certain hardwired COE items from the CPRs - the Company's internal controls over COE plant assets were not considered in determining the nature, timing and extent of audit tests to be performed.

- Auditors should establish clear criteria used to determine whether audit objectives are achieved. Criteria provide a context for understanding the results of an audit. The audit plan, where possible, should state the criteria to be used.[18] Despite repeated requests by the Company and the other RBOCs, the ASD never disclosed its audit standards or criteria used to assess whether assets were "found" or "not found" until the release of the Public Notice on April 7, 1999 (almost one and a half years after the dates of the physical verifications and one month after the release of the Audit Report). If the ASD's scoring and re-scoring criteria were known in advance, as is the normal procedure in conducting an audit, the Company could have gathered the appropriate audit evidence in accordance with such requirements.

- "Auditors should report the views of responsible officials...concerning auditors' findings, conclusions and recommendations."[19] These rules go on to state that, "One of the most effective ways to ensure that a report is fair, complete, and objective is to obtain advance review and comments by responsible auditee officials and others, as may be appropriate. Including the views of responsible officials produces a report that shows not only what was found and what the auditors think about it but also what the responsible persons think about it and what they plan to do about it."[20]

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[15] See Letter to Ms. Kathryn C. Brown, Chief, Common Carrier Bureau from Kathleen Q. Abernathy, U S WEST, Inc. dated July 2, 1998 at Arthur Andersen attachment (Letter to Ms. Kristine M. Ringsdorf, U S WEST, Inc. dated June 26, 1998, from Carl R. Geppert).

[16] Government Auditing Standards: 1994 Revision, issued by the United States General Accounting Office, Comptroller General of the United States (June 1994) [hereinafter Yellow Book].

[17] Yellow Book, ¶ 4.21.

[18] Yellow Book, ¶ 6.11.

[19] Yellow Book, ¶ 7.38.

[20] Yellow Book, ¶ 7.39.

In addition, these rules require the auditor to evaluate management's comments on the audit findings and ***modify the findings if necessary***. "When the comments oppose the report's findings, conclusions or recommendations, and are not, in the auditors' opinion, valid, the auditors may choose to state their reasons for rejecting them. Conversely, the auditors should modify their report if they find the comments valid."[21] The Company in response to the ASD's audit findings submitted extensive documentation. At a minimum, this additional documentation, whether it met the ASD's "probative evidence" standard or not, should have caused the ASD to perform additional audit procedures to validate or invalidate such information, including follow-up visits by the ASD to certain central offices to validate this additional evidence and/or follow-up discussions with Company personnel.

Analysis of the Adequacy and Completeness of ASD's Audit Procedures

Our analysis of the adequacy and completeness of ASD's audit procedures was contained in Appendix A to the Company's response to the December Report[22] and repeated in my Prior Affidavit. This analysis was not disputed in any way in the original comments in this proceeding analysis and will not be repeated here.

Lack of a "Two-Way" Audit

One area that was addressed in comments to this proceeding, however, was the need for the ASD to perform a "two-way" audit, considering both possible understatement as well as overstatement of the COE account balances. The ASD's physical verification procedures were solely directed at detecting instances of potential overstatement in the plant accounting records. Instances of potential understatement were not considered. In other words, the ASD's physical testing procedures would only reveal instances where COE items included on the July 31, 1997 CPRs were not in the specified location as detailed in such CPRs. A comprehensive test of the physical existence of plant assets would not only consider instances of potential overstatement, but would include procedures such as the selection of assets in the respective central offices and the tracing of such assets to the CPRs to ensure that the CPRs are not understated. Only by testing for both potential over- and understatements (i.e., a "two-way" audit) can one begin to form the basis for concluding as to the propriety of the COE account balances.

Mr. Loebbecke discusses the "two-way" audit issue on page 11 of his affidavit. In his discussion, Mr. Loebbecke notes that "the staff's audit was a special purpose audit, not a comprehensive GAAP audit. It was designed only to estimate the amount of equipment on the books that is missing, not the equipment present but not on the books, and the staff properly recommended only that Bell Atlantic write off the missing equipment, not that Bell Atlantic forego recording presently unrecorded items that they

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[21] Yellow Book, ¶ 7.42.

[22] See Attachments A-0 through A-4, to "Comments of Ameritech on December 22, 1998 Draft Audit Report of Ameritech's Continuing Property Record (CPR)," dated January 11, 1999 (hereinafter referred to as the "Ameritech Response").

could determine at any time."[23] This statement is a creative play on words. As the ASD's audit was not a comprehensive audit designed to render a conclusion with respect to the fairness of the Company's COE account balances, recommendations that the Company adjust its property accounts not only should not be made, they cannot be made. To the extent that the Company were to write-off the allegedly missing equipment as the ASD and Mr. Loebbecke recommend, such resultant account balances would then most certainly fail the "fairly presents" standards in accordance with GAAP. Write-ons would then most certainly be required to restate the overall plant balances for "comprehensive GAAP purposes."

The arguments against the performance of a "two-way" audit dismiss the need to consider the possibility of understatement of the CPRs. Mr. Loebbecke states that "Intuitively, it is unlikely that Bell Atlantic would have failed to record significant amounts of equipment on its books, because those records are used to determine the rates Bell Atlantic can charge for its services."[24]

While Mr. Loebbecke's intuitive observation may be true, there may be many reasons that the CPRs do not exactly reflect the specific assets placed in-service. In addition to the possibility that plant assets were never recorded, which I agree is a remote possibility, there exists the real possibility that clerical and/or timing errors exist in the CPRs, in the documentation processed to record asset retirements, or in the input of such documentation in the property records system. In other words, the auditors may have been looking to physically verify assets that existed but were incorrectly described on the CPRs. Or perhaps, when a large retirement job was processed, too many assets were retired in error. Only testing from the central office floor back to the CPRs could have found these situations (i.e., a "two-way" audit). While the ASD's audit procedures may have detected CPR documentation issues, such findings can in no way be used to form a conclusion with respect to the fair presentation, in total, of COE account balances.

ASD's METHODOLOGY USED TO RE-SCORE "NOT FOUND" ITEMS

Evaluation of ASD's Re-scoring Standards and Methodology

The ASD's audit procedures for reclassifying or "re-scoring" field audit findings were first disclosed in the April 7, 1999 Public Notice. In the Public Notice, ASD gives a lengthy explanation of its re-scoring standards, stating that:

> In order to warrant a change in scoring, this additional evidence had to have strong probative value equal to the physical inspection evidence. Carriers were advised to provide adequate and convincing documentation that would make clear that the actual condition was different from what appeared to the auditor at

[23] Loebbecke Affidavit, ¶ 17.
[24] Loebbecke Affidavit, ¶ 17.